ISLSCP Initiative II
Completion-Evaluation

Supported Through:

NASA Earth Science REASoN Program

- Status
- Plans
- Issues

ISLSCP I

Pioneering Data Synthesis for Earth Science

- **Initiated in 1992, completed in 1995**
- **1987-1988, 1 degree, monthly, global**
- **Land cover, meteorological, radiation, SST, Runoff**
- **Over 13,000 CD-ROMs ordered from the Goddard DAAC.**
- **Over 267, 000 files downloaded from web site.**
- **Over 500 citations in the scientific literature**

Journal of Climate	Journal of Applied Meteorology
Monthly Weather Review	Bulletin of the American Meteorological Society
Journal of Hydrometeorology	Earth Interactions

supporting a wide variety of uses:

- **Weather forecast improvements**
- **Hydrological applications**
- **Macroscale basin modeling**
- **Biogeochemical and carbon tracer models**
- **Global carbon flux model intercomparisons**
- **General Circulation Models**
- **Model validation and intercomparison**
- **Algorithm development**
- **Education**

Partners and Data Providers

Global Energy and Water Cycle Experiment

International Geosphere-Biosphere Programme -- Data & Information System

European Centre for Medium-range Weather Forecasts (ECMWF)

NASA Goddard Space Flight Center

Oak Ridge National Laboratory Distributed Active Archive Center

Goddard Distributed Active Archive Center

NOAA's National Centers for Environmental Prediction

IGBP Biospheric Aspects of the Hydrologic Cycle (BAHC)

EROS Data Center (USGS)

Global Runoff Data Center

Global Precipitation Climatology Project

Surface Radiation Budget (NASA-Langley)

Socio-Economic Data Archive Center

National Oceanic and Atmospheric Administration (NESDIS and CMDL)

National Snow and Ice Data Center

Global Precipitation Climatology Centre (GPCC)

International Satellite Cloud Climatology Project

Center for Ocean-Land-Atmosphere Studies

Department of Geography University of Maryland

Department of Atmospheric Science Colorado State University

Department of Geography Boston University

National Institute of Public Health and the Environment (The Netherlands)

Center for Sustainability and the Global Environment University of Wisconsin-Madison

Lamont-Doherty Earth Observatory, Columbia University

Global Hydrology Research Group University of New Hampshire

Duke University

ISLSCP Initiative II (1999-2005)

- **ISLSCP II expands upon the ISLSCP I collection with improved data sets and finer spatial resolution:**
  - Spatial resolution is 1/4, 1/2, and 1 degree.
  - Temporal resolution covers 10-year period from 1986 to 1995.
  - Improved satellite data analysis algorithms
  - New data sets added (47 data sets in the collection)
    - Topography, Soils, ECMWF/NCEP reanalysis, runoff.
    - Satellite precipitation data sets
    - Carbon modeling data sets
    - Socioeconomic data

Initiative II Science Working Group

- **Monthly teleconferences to guide the development of the data collection:**
  - Pavel Kabat, DLO Winand Staring Centre (ISLSCP Chair)
  - Rick Lawford, GEWEX
  - Ichtiaque Rasool, Univ. of Paris VI
  - Randy Koster, NASA/GSFC (Modeling requirements)
  - Carbon: Scott Denning, Colorado State Univ., Dick Olson, Oak Ridge National Lab.
  - Vegetation: Sietse Los, Ruth DeFries, Univ. of Maryland, Alan Strahler, Boston Univ.
  - Radiation/Clouds: Paul Stackhouse, NASA/Langley
  - Near-surface Meteorology: Alan Betts, Pedro Viterbo, ECMWF, Glenn White, NCEP.
  - Snow/Ice: Richard Armstrong, Univ. of Colorado.
  - Topography/Soils/Runoff: Paul Dirmeyer, Center for Ocean-Land-Atmosphere Studies (COLA), Kris Verdin USGS/EROS Data Center, Charles Vorosmarty, Univ. of New Hampshire, Wolfgang Cramer, IGBP-DIS.
  - Precipitation: Arnold Gruber, NOAA/NESDIS, George Huffman, NASA/GSFC
  - Socio-Economic Data Sets -- Mark Levy (CESIN)

Data Volumes:

5 DVDs (~4.3 GB data each)

1 - ECMWF Meteorology, 3 hourly monthly averages

2 - NCEP Meteorology, "

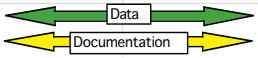
3 - SRB Radiation, "

4 & 5 - All the rest

Full 3 hourly data sets (~180 GB compressed, 47 DVDs) available via Web based DODS

	Data Category	Data Set	Data Set Received?	Data Set Processed ?	First Review Status	Second Review Status	Land Sea Mask Applied ?	1 degree Available?	Actions
1	**Carbon**	Air-Sea CO2 Exchange	x	x	x	x	1 degree only	yes	
2		CDIAC Fossil Fuel Emissions	x	x	x		Not applicable	yes	Eric to complete document
3		EDGAR Gridded Greenhouse Gas Emissions (C02, CH4, SO2, CH4,Nox)	x	x	No document		Not applicable	yes	We need to produce documentation
4		Gridded Net Primary Production (NPP)	x	x	x	x	yes	yes	
5		Modelled NPP for 17 models	x	x	x	x	yes	yes	
6		Riverine Flux of Carbon to the Oceans	x	x	x	x	yes	yes	Documentation needs minor updates
7		Atmospheric CO_2 Concentrations	x	x	Skip First Review	x	not needed	point	Dave to clean up uneeded files; Documentation to be updated
8		Atmospheric Methane Concentrations	x	x	Skip First Review	x	not needed	point	Dave to clean up uneeded files; Documentation to be updated
9		FLUXNET	x	x	x	x	not needed	point	
10		Point NPP	x	x	x	x	not needed	point	
11	**Socioeconomic**	Gridded Population	x	x	x	x		yes	Apply Land/sea mask as per FGH
12		Gross National Product	x	x	x	x		yes	Apply Land/sea mask as per FGH
13	**Vegetation**	Albedo (AVHRR)	x	x	x	x		yes	Data issues found
14		Albedo (ERBE)	x	x	x	x	not needed	yes	
15		Albedo (MODIS)	x	x	x	x		yes	
16		Albedo (NOAA-NESDIS)	x	x	x	x	yes	yes	Finish documentation
17		Albedo (snow-free)	2 weeks to re-process	Data to be reprocessed	x		yes	yes	Reprocess after FASIR reprocess; FGH document comments sent to author
18		C4 Percentage	x	x	x	x	yes	yes	
19		Ecosystem Rooting Depth	x	x	x	x	yes	yes	
20		FASIR-Biophysical Parameters	x	Data being checked	x	B. Middleton	yes	yes	Data delivered 2/27/04; Forrest in charge of evaluations; B. Middleton to do 2nd review
21		FASIR-NDVI	x	Data being checked	x	B. Middleton	yes	yes	Data delivered 2/27/04; Forrest in charge of evaluations; B. Middleton to do 2nd review
22		GIMMS-NDVI	x	Data being checked	Forrest Hall		yes	yes	Forrest in charge of evaluations; need second reviewer
23		Historical Cropland Cover	x	x	x	x	yes	yes	
24		Historical Land Cover	x	x	x	x	yes	yes	
25		Land Cover (Continuous Fields)	x	x	x	x	yes	yes	
26		Land Cover(EDC)	x	x	x	x	All but BATS	yes	Eric to produce BATS scheme using new ISLSCP2 Inland Water Mask
27		Land Cover (MODIS)	x	x	x	x	yes	yes	
28		Land Cover (UMD)	x	x	x	x	yes	yes	
29		Potential Vegetation	x	x	x	x	yes	yes	
30		Point Leaf Area Index (LAI)	x	x	x	x	not needed	point	
31	**Near Surface Meteorology**	ECMWF Reanalysis	x	Processing 3-hourly	x		yes	yes	All data in hand; Processing 3-hourly + new data
32		NCEP Reanalysis	x	x	x	x	yes	yes	Data/Docs. at DAAC
33		CRU Monthly Climate Data Sets and Climatology	x	x	x	x	yes?	yes	Apply Land/sea mask as per FGH
34	**Radiation and Clouds**	SRB Radiation and Clouds	x	x	x	x	not needed	yes	data/docs to be transferred to DAAC
35	**Hydrology, Soils and Topography**	Digital Elevation Data (Hydro1k)	x	Reprocess data	x	x	Not applicable	yes	Final issue with aspect needs to be resolved
36		Precipitation (Daily Gauge)	x	x	x			yes	Apply Land/sea mask as per FGH
37		Precipitation (Gauge Only)	x	x	x	x		yes	Apply Land/sea mask as per FGH
38		Precipitation (Pentad Dataset)	x	x	x	x	not needed	yes	
39		Precipitation (Satellite & Gauge)	x	x	x	x	not needed	yes	
40		River Routing (STN30p)	x	Data being checked	x	Mike Coe	Coastlines	yes	
41		Rooting Zone Water Storage	x	x	x	x	yes	yes	
42		Soil Properties	x	Thermal Properties	x			yes	Eric re-processing data
43		Spatially Distributed Runoff	x	Data being checked	x		yes		
44		River Discharge	x	Data being checked	x		not needed	point data	
45	**Snow and Sea Ice**	Sea Ice Concentration	x	x	x	x	One degree only	yes	
46		Snow Cover Extent	x	x	x	x	One degree only	yes	
47	**Oceans**	Optimally Interpolated SST	x	x	x	x	yes	yes	
48	**Ancillary Data**	Land/Water/Sea Masks	x	x	x	x	N/A	yes	

ISLSCP2 Data Processing and Documentation Completion Schedule

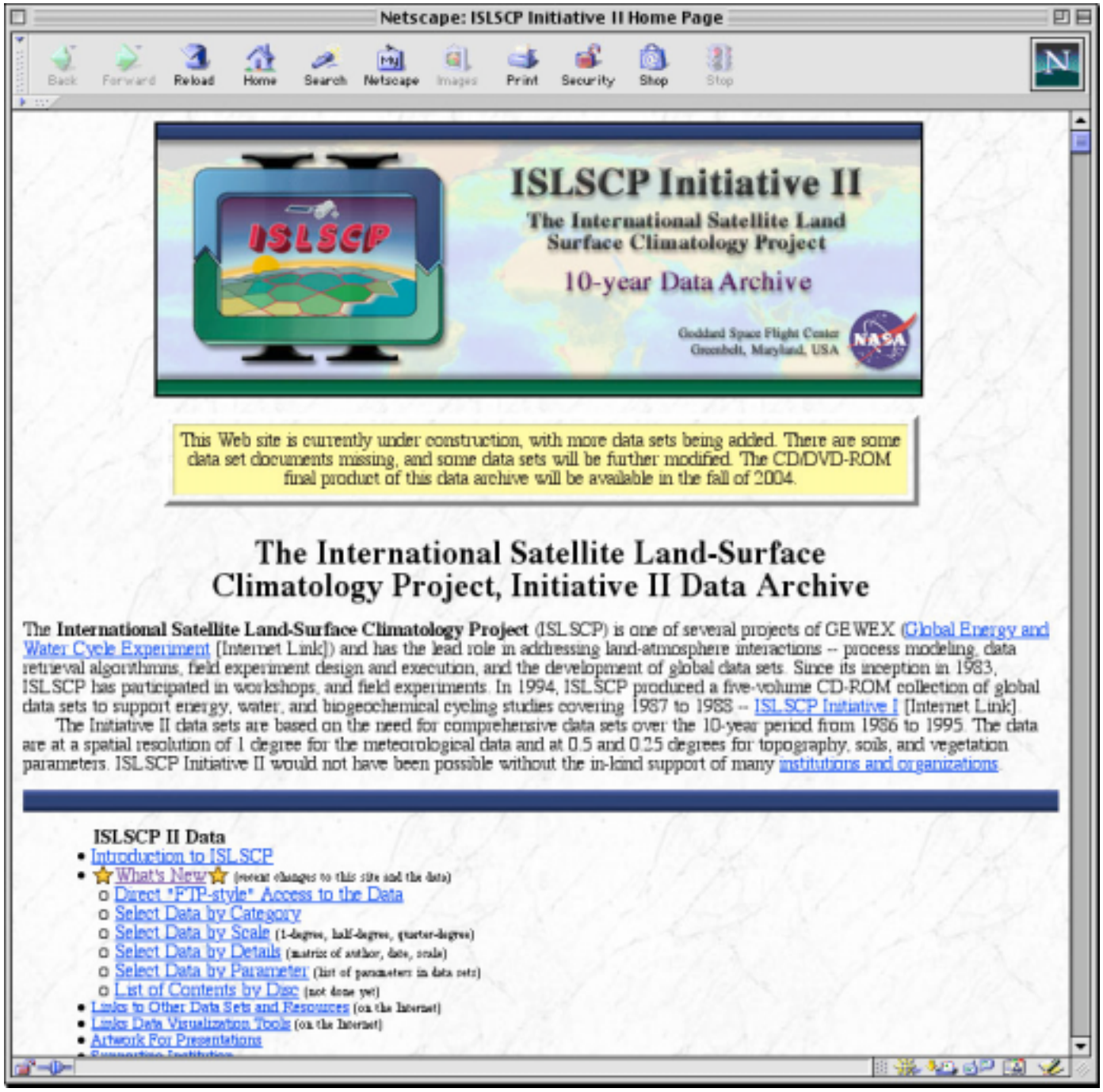


	Data Category	Data Set	1/15/04	2/1/04	2/15/04	3/1/04	3/15/04	4/1/04	4/15/04	5/1/04	5/15/04	6/1/04	6/15/04	7/1/04	ACTIONS REQUIRED
1	**Carbon**	CDIAC Fossil Fuel Emissions													Data set in hand and processed; need to complete documentation and second review
2		EDGAR Gridded Greenhouse Gas Emissions (C02, CH4, SO2, CH4,Nox)													Data set in hand and processed; need to generate documentation, first and second review are needed; low priority
3		Riverine Flux of Carbon to the Oceans													Need to double check data processing and complete final version of documentation
4		Atmospheric CO_2 Concentrations													Need to check file archive and complete final version of documentation
5		Atmospheric Methane Concentrations													Need to check file archive and complete final version of documentation
6		FLUXNET		DONE											**DONE**
7	**Socioeconomic**	Gridded Population													Apply land/sea mask as per FGH and update documentation
8		Gross National Product													Apply land/sea mask as per FGH and update documentation
9	**Vegetation**	Albedo (AVHRR)													Dave Landis to apply land/sea mask and update documentation
10		Albedo (MODIS)													Need to apply land/sea mask and update documentation
11		Albedo (NOAA-NESDIS)				DONE									Dave Landis applying land/sea mask and updating documentation
12		Albedo (snow-free)													Two weeks to process by D. Dazlich; We assume the product does not require re-processing; documentation needs second review
13		FASIR-Biophysical Parameters													Data sets delivered 2/27/04; minimal re-processing required; Documentation needs second review
14		FASIR-NDVI													Data sets delivered 2/27/04; minimal re-processing required; Documentation needs second review
15		GIMMS-NDVI													Data set in hand; Applying ice mask; documentation needs first and second review
16		Land Cover(EDC)													Apply inland water mask to BATS scheme; documentation needs to be updated and re-reviewed
17	**Near Surface Meteorology**	ECMWF Reanalysis													All data in hand; re-process monthly data with land/sea mask; process all 3 hourly data; documentation needs to be updated and sent for second review
18		CRU Monthly Climate Data Sets and Climatology													Processing only if land/sea mask needs to be applied
19	**Hydrology, Soils and Topography**	Digital Elevation Data (Hydro1k)													Need to resolve issue w/aspect; submitted data will likely need re-processing
20		Precipitation (Daily Gauge)													Processing only if land/sea mask needs to be applied; documentation needs second review
21		Precipitation (Gauge Only)													Need to update data set and documentation from new version; will need re-processing if land/sea mask is applied
22		River Routing (STN30p)													Re-processing needs to be checked; second review needs to be completed
23		Soil Properties													Eric to process all layers; documentation needs a lot of work plus second review
24		Spatially Distributed Runoff													Re-processing needs to be checked; second review needs to be completed
25		River Discharge													Re-processing needs to be checked; second review needs to be completed

Schedule

Activity	Lst Qtr CY03	1st Qtr CY04	2nd Qtr CY04	3nd Qtr CY04	4nd Qtr CY04	1st Qtr CY05	2nd Qtr CY05
Complete Processing	X →						
Transfer to DAAC		X →					
Complete DAAC Implement.			X →				
Complete Evaluation			telecons	Wkshp 1	telecons	Final Wkshp	
Publish Results				Release Paper			Evaluation Paper

http://islscp2.sesda.com/ISLSCP2_1.html_pages/islscp2_home.html



ISLSCP Initiative II

Related Pages
ISLSCP Initiative II Home

ISLSCP II General Data Categories

The global data sets are mapped at consistent spatial and temporal resolutions and are compiled in four key areas: land cover, hydrometeorology, radiation, and soils. The data sets cover those four areas, span the 10-year period, 1986-1995, and are mapped to consistent grids (0.5 x 0.5 degree for topography and land cover; 1 x 1 degree for meteorological parameters). The temporal resolution for most data sets is monthly; however, a few are at a finer resolution (e.g., 3-hourly).

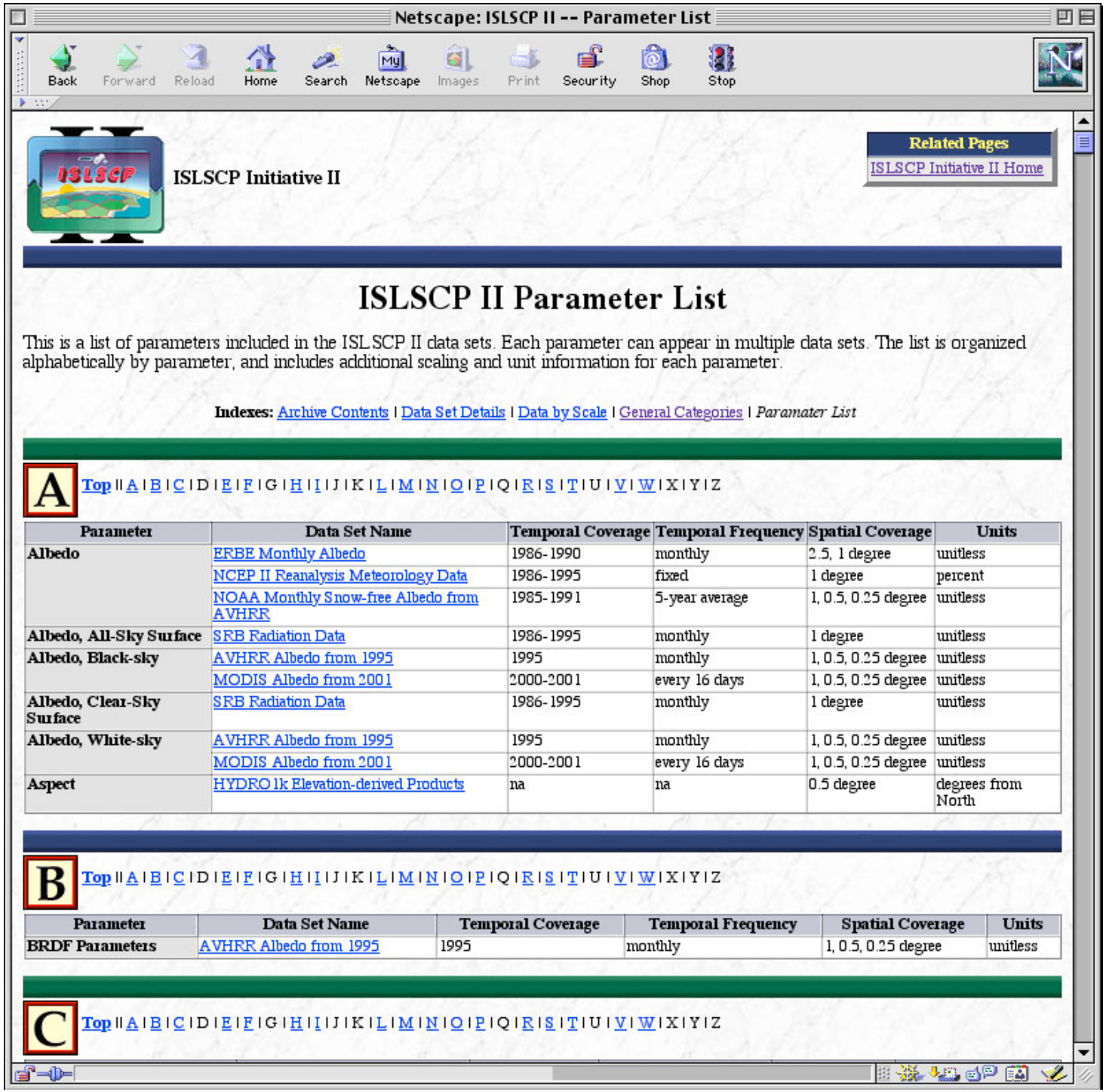
The data sets in this archive have been organized by data categories, listed below. Click on the data category name to continue the data extraction process.

- Carbon
- Hydrology, Soils, and Topography
- Near-Surface Meteorology
- Radiation and Clouds
- Snow, Sea Ice, and Oceans
- Socioeconomic
- Vegetation
- Ancillary Data

Indexes: Archive Contents | Data Set Details | Data by Scale | *General Categories* | Parameter List

Related Pages:
ISLSCP Initiative II Home
General Data Categories

Revision Date: February 10, 2003



ISLSCP Initiative II

Related Pages
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ISLSCP II Parameter List

This is a list of parameters included in the ISLSCP II data sets. Each parameter can appear in multiple data sets. The list is organized alphabetically by parameter, and includes additional scaling and unit information for each parameter.

Indexes: Archive Contents | Data Set Details | Data by Scale | General Categories | *Paramater List*

A

Top || A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z

Parameter	Data Set Name	Temporal Coverage	Temporal Frequency	Spatial Coverage	Units
Albedo	ERBE Monthly Albedo	1986-1990	monthly	2.5, 1 degree	unitless
	NCEP II Reanalysis Meteorology Data	1986-1995	fixed	1 degree	percent
	NOAA Monthly Snow-free Albedo from AVHRR	1985-1991	5-year average	1, 0.5, 0.25 degree	unitless
Albedo, All-Sky Surface	SRB Radiation Data	1986-1995	monthly	1 degree	unitless
Albedo, Black-sky	AVHRR Albedo from 1995	1995	monthly	1, 0.5, 0.25 degree	unitless
	MODIS Albedo from 2001	2000-2001	every 16 days	1, 0.5, 0.25 degree	unitless
Albedo, Clear-Sky Surface	SRB Radiation Data	1986-1995	monthly	1 degree	unitless
Albedo, White-sky	AVHRR Albedo from 1995	1995	monthly	1, 0.5, 0.25 degree	unitless
	MODIS Albedo from 2001	2000-2001	every 16 days	1, 0.5, 0.25 degree	unitless
Aspect	HYDRO 1k Elevation-derived Products	na	na	0.5 degree	degrees from North

B

Top || A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z

Parameter	Data Set Name	Temporal Coverage	Temporal Frequency	Spatial Coverage	Units
BRDF Parameters	AVHRR Albedo from 1995	1995	monthly	1, 0.5, 0.25 degree	unitless

C

Top || A | B | C | D | E | F | G | H | I | J | K | L | M | N | O | P | Q | R | S | T | U | V | W | X | Y | Z

Example of
DODS approach

–

Subsetting from large data holdings to suit the users specific needs

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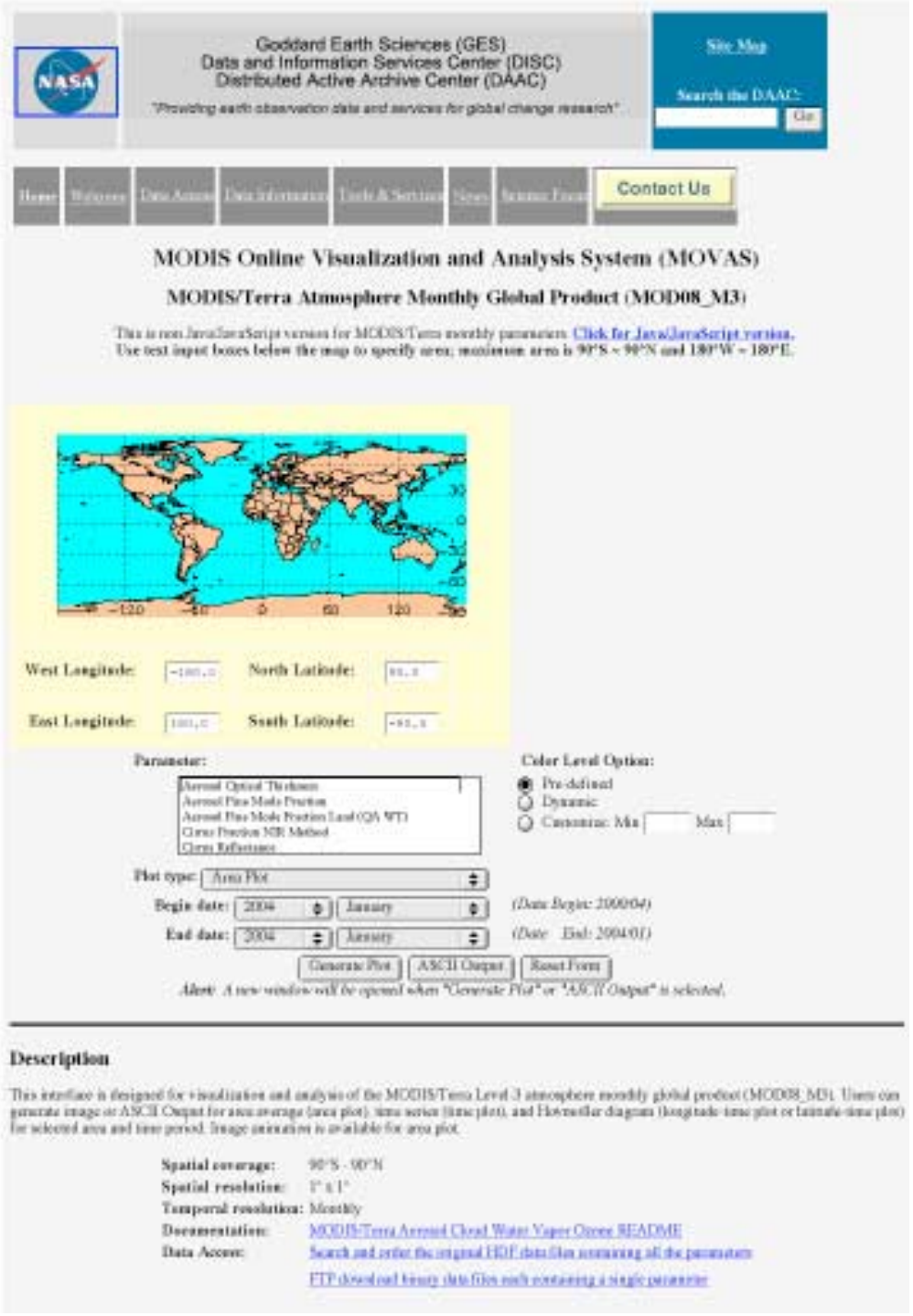
Especially applicable to:

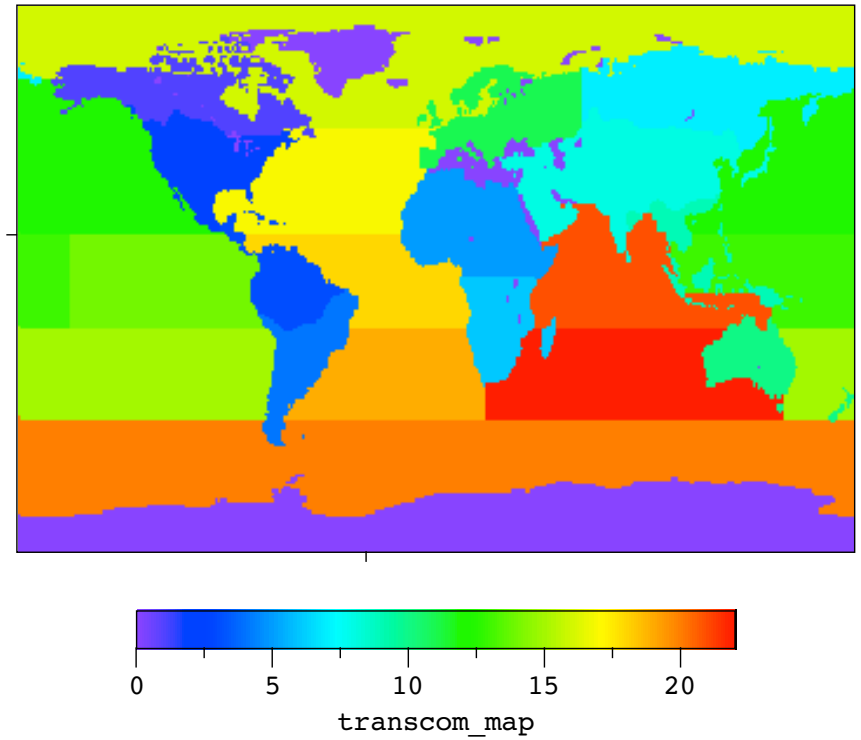
- 3 hourly,10 years,1°x1° ECMWF, NCEP and SRB data
- Users constrained by slower download data rates



Initial Evaluation Approach

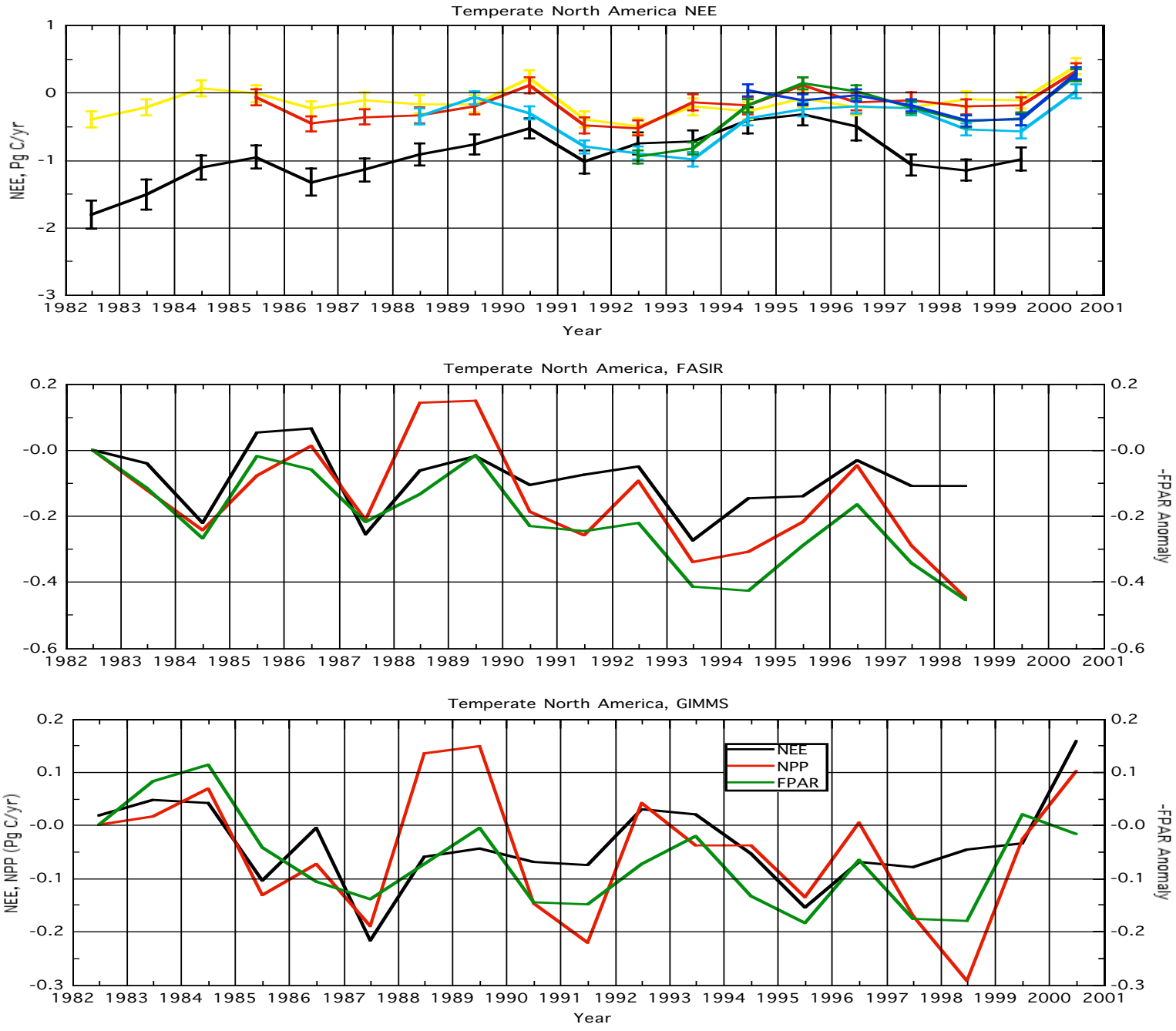
- Prerelease delivery of selected data sets for evaluation by science community
  - e.g. FASIR LAI to Yongkang Xue (UCLA), Ning Zeng (UMDCP)
- Comparison of data sets within ISLSCP II holdings.
  - NDVI: FASIR vs GIMMS
  - Albedo: MODIS, FASIR, NESDIS, AVHRR, SRB
  - Land Cover Classification: MODIS, IGBP, UMDCP
  - Climate (Temperature, Precipitation, Solar Irradiance: CRU, ECMWF, NCEP, GPCP, GPCC, SRB
  - Evapotranspiration: ECMWF, NCEP
- Model sensitivity to ISLSCP data products
  - Soil Wetness - Dirmeyer (COLA)
  - Carbon Fluxes - Collatz
  - Evapotranspiration - Koster (GSFC)
- Input from Science Working Group
- Workshop to review initial evaluation
- Publication in Peer Reviewed Journal (BAMS) upon release of ISLSCP II
- Evaluation and user guidance documentation included in release

Comparison of data sets within ISLSCP II holdings.



•Plots of interannual anomalies for TransCom Regions

Comparison between Atmospheric Inversions and Model Driven by Different NDVI Data Sets



Resource Requirements as Stated in Task Plan (09/03):

Personnel

Jim Collatz - 0.0 FTE
- Administration
- Evaluation of carbon cycle relevant data

Forrest Hall - 0.2 WKY
- Lead day to day activities of development team
- Interface with Science Community

Eric Brown de Colstoun - 0.4 WKY
- Collect and process data and documentation from providers
- Evaluation of Land cover and other data sets

David Landis - 0.4 WKY
- Web/DVD distribution of data
- Interface with migration to DAAC

Lahouari Bounoua - 0.4 WKY
- Evaluation of climate data
- Interface with with climate model data users

Other

DVD burning

DAAC distribution fees

Issues:

- Funding Schedule
  - 1/4 FY '03 - received
  - 1/2 FY '04 - ?
  - 1/4 FY '05
- DAAC distribution fees beyond '05